



Naval Surface Warfare Center, Dahlgren Division

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Commander

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Technical Director (acting)



Congressional Staff Members



2 May 2013



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NAVSEA WARFARE CENTERS



DETACHMENTS

NSWC CARDEROCK DIVISION

ACOUSTIC RESEARCH DETACHMENT
BAYVIEW - IDAHO

ACOUSTIC TRIALS DETACHMENT
CAPE CANAVERAL - FLORIDA

COMBATANT CRAFT DIVISION
NORFOLK - VIRGINIA

LARGE CAVITATION CHANNEL
MEMPHIS - TENNESSEE

NAVAL SUBMARINE TRAINING CENTER, PACIFIC
PEARL HARBOR - HAWAII

PUGET SOUND DETACHMENT
SILVERDALE - WASHINGTON

SPECIAL TRIALS FACILITY
PATUXENT RIVER - MARYLAND

SOUTH FLORIDA TESTING FACILITY
DANIA - FLORIDA

NSWC CORONA DIVISION

NAVAL WEAPONS STATION SEAL BEACH, DETACHMENT NORCO
SEAL BEACH - CALIFORNIA

NSWC CRANE DIVISION

FALLBROOK DETACHMENT
MARINE CORPS PROGRAMS
FALLBROOK - CALIFORNIA

NSWC EODTECH DIVISION

EOD TECHNICAL SUPPORT DETACHMENT
INDIAN HEAD - MARYLAND

NSWC INDIAN HEAD DIVISION

PICATINNY DETACHMENT
PICATINNY - NEW JERSEY

SPECIAL WEAPONS DEPARTMENT
MCALISTER - OKLAHOMA

NSWC PORT HUENEME DIVISION

WHITE SANDS DETACHMENT
WHITE SANDS - NEW MEXICO

NUWC KEYPORT DIVISION

PACIFIC DETACHMENT
WAHIAWA - HAWAII

SAN DIEGO DETACHMENT
SAN DIEGO - CALIFORNIA

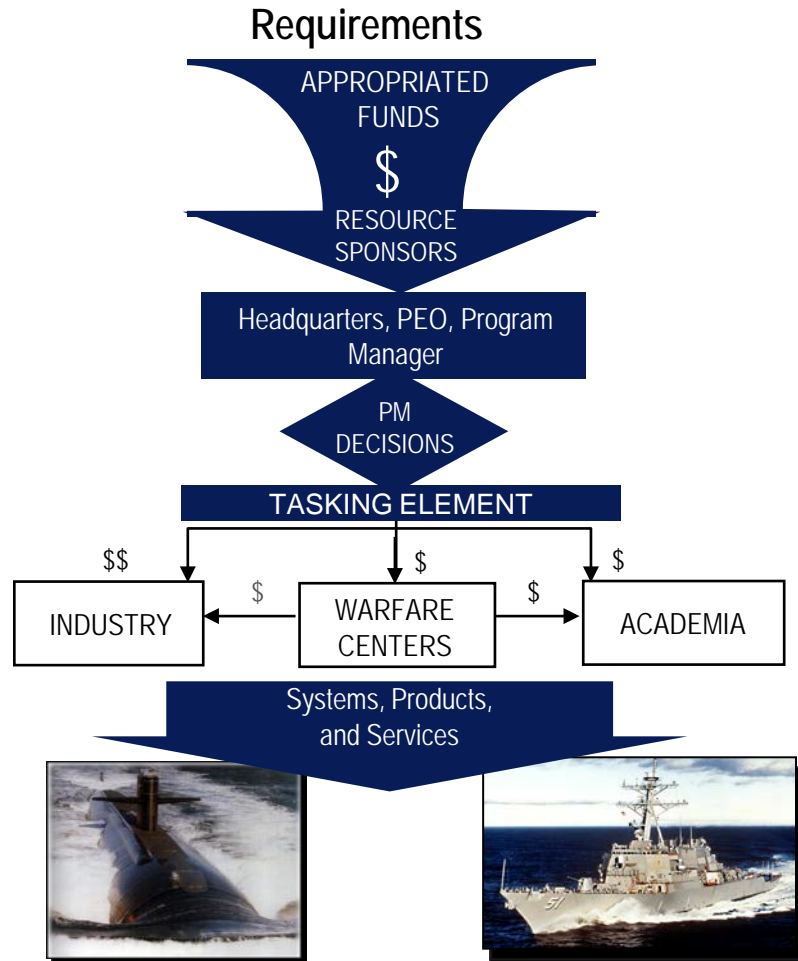
NUWC NEWPORT DIVISION

ATLANTIC UNDERWATER TEST & EVALUATION CENTER
ANDROS ISLAND - BAHAMAS

ATLANTIC UNDERWATER TEST & EVALUATION CENTER
WEST PALM BEACH - FLORIDA

Warfare Centers Business Model

Navy Working Capital Fund (NWCF)

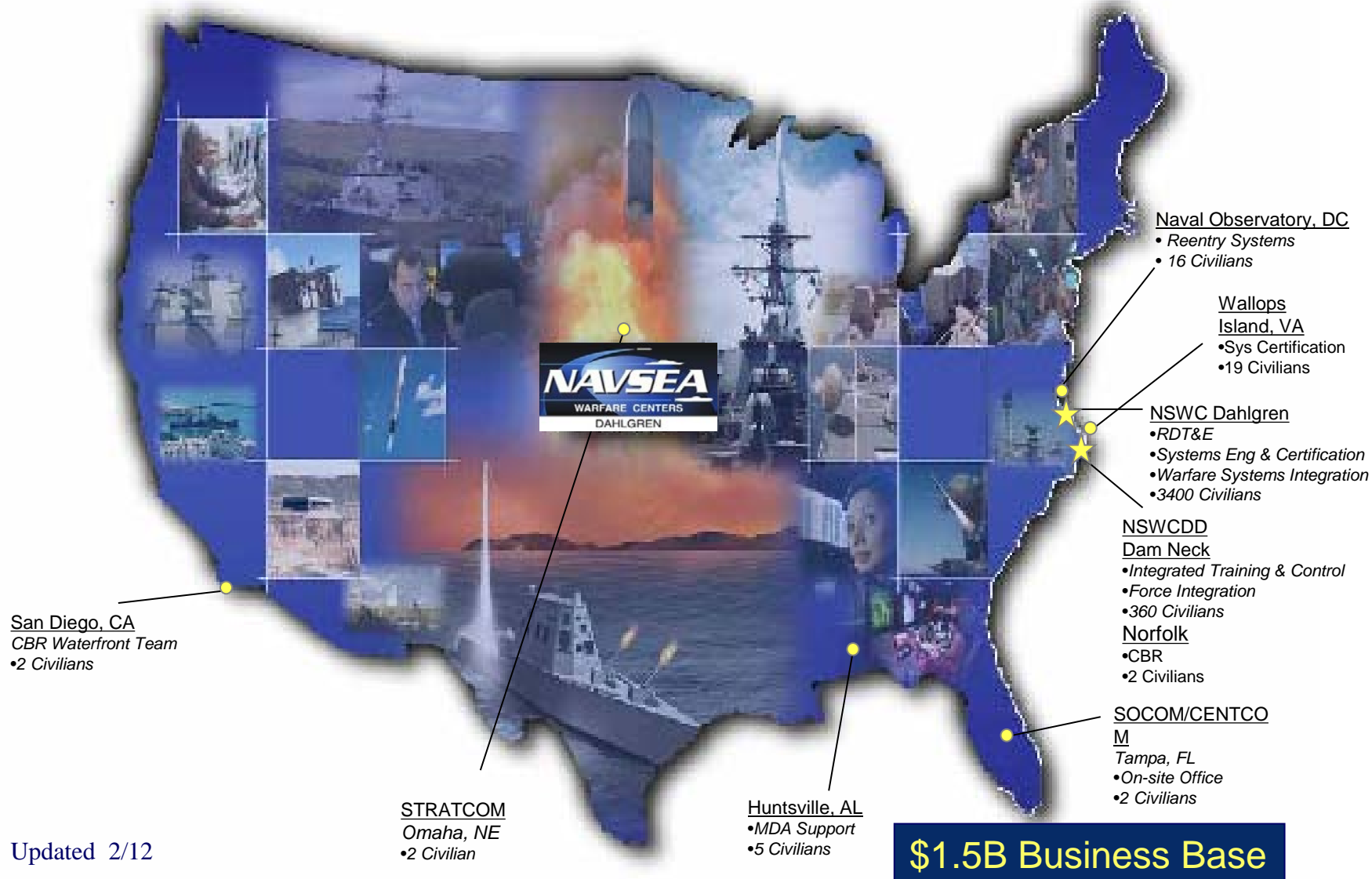


- Customers decide where to buy products and services based on:
 - Assigned Mission and Technical Capabilities
 - Performance Record
- Warfare Centers are accountable for efficient delivery of products and services
 - Contractual in nature
 - Funds must be received before work is performed
 - Tasking accepted is well defined with clear deliverables and products
 - All work screened through work acceptance process
 - Cost estimates are based on stabilized rates structured for full cost recovery
 - Overhead is embedded in the rate and used to “run the business” and re-invest in infrastructure and workforce development
 - Workforce is sized to funded workload

Supply = Demand

WCs Operate in a Supply/Demand Business Model

NSWC Dahlgren Division



Updated 2/12

133 WFC Technical Capabilities

Distribution Statement A:
Approved for Public Release

Carderock

- CD01 Ship & Submarine Design & Integration
- CD02 Ship & Submarine Acquisition Engineering
- CD03 Ship & Submarine Sys Concepts, Techs & Processes
- CD04 Surf & Undersea Vehicle Machinery Sys Integration (Phil)
- CD05 Combatant Craft & Marine Corps Vehicles
- CD06 Unmanned Vehicles Naval Architecture & Marine Engineering
- CD07 Hull Forms & Fluid Dynamics
- CD08 Propulsors
- CD09 Surf & Undersea Vehicle Mechanical Power & Propulsion Sys (Phil)
- CD10 Surf & Undersea Vehicle Electrical Power & Propulsion Sys (Phil)
- CD11 Surf & Undersea Vehicle Auxiliary Machinery Sys (Phil)
- CD12 Surf & Undersea Vehicle Hull, Deck, & Habitability Machinery Sys (Phil)
- CD13 Surf & Undersea Vehicle Mach Auto, Controls, Sensors & Network Sys (Phil)
- CD14 Surf, Undersea, & Weapon Vehicle Materials
- CD15 Surf & Undersea Vehicle Structures
- CD16 Alternative Energy & Power Sources R&D
- CD17 Liquid Waste Management, Science & Sys
- CD18 Solid Waste, Hazardous Material, & Radiation Tech Mgt, Science & Sys
- CD19 Advanced Logistics Concepts & HM&E Life Cycle Logistics Support
- CD20 Surf, Undersea & USMC Vehicle Vulnerability Reduction & Protection
- CD21 Ship Recoverability & Damage Control
- CD22 Surf & Undersea Vehicle Underwater Signatures, Silencing Sys & Suscept
- CD23 Surf & Undersea Veh Non-Acoustic Topside Signas, Silencing Sys & Suscept
- CD24 HM&E for Undersea Vehicle Sail Sys & Deployed Sys

NAVSEA Warfare Centers

10 Divisions
12 Sites

133 Technical Capabilities

DD27 Tactical Common Data Comms Sys Integr'n & I/O
DD35 Integrated Surf Combat Control Sys Support
DD36 Integrated Training Sys
DD37 Radar Distribution Sys
DD38 Joint C&C Sys Integr'n & Arch Dev

Dam Neck

AC01 Warfare Sys Performance & Readiness Assess
AC02 Quality & Mission Assurance Assessment
AC03 Metrology, Test, & Monitoring Sys Assess
AC04 Force Training Assessment
AC05 Weapons Sys Interface Assess

Corona

DD01 Force & Surf Platform Level Warfare Sys Analysis & Modeling
DD02 Weapon Sys Analysis, Effects, & Effectiveness
DD03 Radar & Electro-Optic Sys RDT&E
DD04 Surf Warfare Sys Engineering & Integration RDT&E
DD05 Surf Combat Sys Engineering & Integration RDT&E
DD06 Surf Combat Control Sys S&T, RDT&E
DD07 Surf Conventional Weapon Control Sys RDT&E
DD08 Surf Warfare System & Force Level Certification/IV&V
DD09 Human Sys Integration Science & Engineering
DD10 Missile Sys Integration
DD11 Surf Conventional & Electromagnetic Gun Sys RDT&E
DD12 Directed Energy Sys RDT&E
DD13 Weaponization of Surf & Air Unmanned Sys
DD14 Marine Corps & Other Weaponry Sys RDT&E
DD15 Strategic Mission Planning, Targeting, & Fire Control Sys
DD16 Re-Entry Sys
DD17 Surf Electronic Warfare Sys Arch & CS Integration RDT&E
DD18 Surf Warfare Sys Safety
DD19 Surf Warfare Electromagnetic Environmental Effects
DD20 Chemical, Bio, & Radiological Warfare RDT&E
DD21 Nat'l Response Missions Incl Homeland Sec & Defense
DD22 Physical & Non-Physical Vulnerability Analysis
DD23 Force Level Warfare Sys Eng & Integration
DD24 Force Level Warfare Sys I/O Eng

Dahlgren

NP01 Submarine Exterior Communication Systems
NP02 USW Communication Antenna Systems
NP03 USW Combat Systems
NP04 USW Trainer Systems
NP05 USW Sensor & Sonar Systems
NP06 Submarine Periscopes & USW Imaging Systems
NP07 USW EW, SIGINT, IO Sensors & Sys Integration
NP08 Undersea Surveillance Sys
NP09 USW Launcher Sys & Payload Integration
NP10 Submarine Tactical Missile Integration
NP11 USW Autonomous Vehicles
NP12 Torpedo & Sonar Defensive & CM Systems
NP13 Torpedo Sys
NP14 Undersea Warfare (USW) Analysis
NP15 USW Env Assessment Effects Analysis
NP16 Undersea Range Technology & Application
NP17 Atlantic Range Management
NP18 USW Test & Training Operations
NP19 USW Sys Test & Evaluation
NP20 USW Distributed Netted Sys

Newport

KP01 Pacific USW T&E Range & Test Facility Operations
KP02 Independent USW Sys T&E & Experimentation
KP03 USW Weapons & Vehicles Range & Env Test Sys
KP04 Torpedo & UUV Maintenance & Repair
KP05 Obsolescence Manage for Undersea Warfare Sys
KP06 Undersea Warfare Sys Material Depot
KP07 Torpedo & Unmanned Undersea Vehicles ISE & ILS
KP08 Submarine USW Sys ISE & ILS
KP09 Carrier USW Sys
KP10 Fleet Training & Training Mgt Sys

Keyport

PH01 Strike Force Interop & Theater Warfare Systems ISE, T&E, & ILS
PH02 Surface Combat Systems ISE, T&E, & ILS
PH03 Surface Weapon Systems ISE, T&E, & ILS
PH04 Underway Replenishment Systems ISE, RDT&E, & ILS
PH05 Surface Gun Systems ISE, T&E, & ILS
PH06 Surface Missile Systems ISE, T&E, & ILS
PH07 Surface Missile Launcher Systems ISE, T&E, & ILS
PH08 Radar Systems ISE, T&E, & ILS
PH09 Directed Energy Systems ISE, T&E, & ILS

Port Hueneme

PC20 Chemical & Biological Warfare Individual Protection System
PC21 Expeditionary Coastal & Maritime Security System Engineering & Integration
PC25 Air Cushion Vehicle Sys
PC26 Expeditionary Maneuver Warfare Sys Eng & Integration
PC27 Special Warfare Maritime Mobility Mission Sys & Mission Support Equipment
PC28 MCM Detect & Engage Sys, Modular Mission Packaging & Platform Integration & Handle
PC29 Littoral Mission Sys Integration & Modular Mission Packages Certification
PC30 Unmanned System Eng & Int'n, Autonomous Operations, Joint I/O & Common Control
PC31 Mine Sensor & Target Detection Tech, Mine Delivery Platform Integrate & Minefield Arch
PC33 Diving & Diving Support Sys
PC34 Surface Life Support Sys for Extreme Environments

Panama City

CR01 Strategic Systems Hardware Engineering, AE, & Sustainance
CR02 Conventional Ammunition Engineering & Sustainance
CR03 SPECOPs Hardware ISE, Procurement & Sustainance
CR04 EW Sys RDT&E/Acquisition/Sustainment
CR05 Radar Component Sustainance
CR06 Energy & Power Source AE, ISE, T&E & Sustainance
CR07 Acoustic Sensors AE, ISE & Sustainance
CR08 Microwave Technologies RDT&E, AE & Sustainance
CR09 Microelectronic Technology RDT&E, AE, & Sustainance
CR10 Infrared CMs & Pyrotechnic RDT&E & Sustainance
CR11 Defense Security Sys AE, ISE & Sustainance
CR12 Navy Electronics Depot
CR13 Electro-Optic, AE, ISE & Sustainance
CR14 Obsolescence Management

Crane

IH01 Energetic Sys RDT&E, AE, ISE & Sustainance
IH02 Energetic Sys & Material Scale-up, Manufacture & Manufacturing Tech
IH03 CADs, Cutters, Sounding & Specialty Devices RDT&E, AE, ISE, Sustainance, & Mfg
IH04 Weapon Simulators, Trainers, Training, Test & Diagnostic Equipment RDT&E, AE, ISE, & Sustain
IH05 Energetic Safety, Environmental Technology, Logistics, & PHST RDT&E, AE, ISE & Sustain

Indian Head EOD

ED01 C-IED Technology
ED02 C-IED Information
ED03 EOD Technology
ED04 EOD Information
ED05 Crew Tech
ED06 Crew Info

NSWCDD Technical Capabilities

- ❖ Force & Surface Platform Level Warfare Systems Analysis and Modeling
- ❖ Weapon Systems Analysis, Effects, and Effectiveness
- ❖ Radar and Electro-Optic Systems RDT&E
- ❖ Surface Warfare Systems Engineering & Integration RDT&E
- ❖ Surface Combat Systems Engineering & Integration RDT&E
- ❖ Surface Combat Control Systems S&T, RDT&E
- ❖ Surface Conventional Weapon Control Systems RDT&E
- ❖ Surface Warfare System and Force Level Certification/IV&V
- ❖ Human Systems Integration Science and Engineering
- ❖ Missile Systems Integration
- ❖ Surface Conventional and Electromagnetic Gun Systems RDT&E
- ❖ Directed Energy Systems RDT&E
- ❖ Weaponization of Surface & Air Unmanned Systems
- ❖ Marine Corps and Other Weaponry Systems RDT&E
- ❖ Re-Entry Systems
- ❖ Strategic Mission Planning, Targeting, and Fire Control Systems
- ❖ Surface Electronic Warfare Systems Architecture & Combat System Integration RDT&E
- ❖ Surface Warfare Systems Safety
- ❖ Surface Warfare Electromagnetic Environmental Effects
- ❖ Chemical, Biological and Radiological Warfare Defense Systems RDT&E
- ❖ National Response Missions, Including Homeland Security and Defense
- ❖ Physical & Non-Physical Vulnerability Analysis
- ❖ Force Level Warfare Systems Engineering and Integration
- ❖ Force Level Warfare Systems Interoperability Engineering
- ❖ Integrated Surface Combat Control Systems Support
- ❖ Integrated Training Systems
- ❖ Radar Distribution Systems
- ❖ Joint Command and Control Systems Integration and Architecture Development

•Indicates work performed at
CDSA, Dam Neck

NSWC Dahlgren Division Program Areas

G Engagement Systems

- Advanced Weaponry
- Expeditionary Weapon Sys.
- Guns and Munitions
- Launcher Systems and Integration
- Lethality, Vulnerability, and Systems Effectiveness
- Small Boat & Land Vehicle Systems Integration
- Systems Safety Eng
- Test and Evaluation
- Unmanned Systems Integration

K Strategic & Weapon Control Systems

- Strategic Systems Programs
- Surface and Under Sea Warfare
- Tomahawk
- Aegis Weapons Control Systems
- Littoral Combat Ship Surface Warfare
- Vertical Launch System

Q Electromagnetic & Sensor Systems

- Surface Ship Radars
- Directed Energy/CIED
- E3 Programs: Systems Engineering, Radiation Hazards Program, HERO, SEMCIP/EM, Electro-optic/Infrared (EO/IR) Systems
- Spectrum Engineering Management
- Topside Design
- Advanced Computational Technologies
- Electronic Warfare (EW) Systems Integration

W Warfare Systems

- Combat Control & Integration
- Future Warfare Systems Engineering
- Warfare Analysis
- Warfare Systems Tech & Concept Exploration
- Open Architecture (OA)
- BMD Systems Engineering
- Human Systems Integration
- Joint Track Management
- Naval Integrated Fire Control

Z Asymmetric Systems

- Chemical-Biological & Radiological Defense (CBRD)
- Identity Management, Biometrics, & Forensics
- Mission Assurance
- Tagging, Tracking, & Locating (TTL)
- Anti-Terrorism and Force Protection (AT/FP)

F Maritime and Joint Systems

- Integrated Training Capabilities
- Force Integration & Inter-operability
- Integrated Combat Control Systems
- Global Maritime Security

Representative Technical Roles

- ❖ **Specialty Site for Naval Surface Weapons Systems Integration**
- ❖ *NAVSEA 05 Technical Warrant Holder Resident on Campus*
 - Combat and Weapon Control Systems – Surface Ship; Guns – Surface Ships; Launcher Systems – Surface Ship (except USW); Missiles - Surface Ship; Radar and RF Systems – NAVSEA (except submarines); EMI Control/EMC/EMP/RADHAZ – Surface Ship; Displays & Human Factors Engineering, Directed Energy & Electric Weapons
- ❖ **NAVSEA's Technical Expert for Directed Energy & Rail Gun**
- ❖ **Software Design Agent for SLBM Fire Control and SSGN AWS Launch Control**
- ❖ **LSEA for Aegis Combat System**
- ❖ **ISEA for Aegis Weapons System Computer Programs**
- ❖ **Trusted Agent for Safety, Lethality, E3, Integrated Topside Design, Anti-Tamper, CBR**
- ❖ **TDA/DA/AEA/SEA for many programs, including:**
 - Launchers, CEC, Q70, SGS, Navy Identity Dominance System, CBR Collective Protection Systems, CB Detection, Decontamination and Information Systems, VLS SW, CADRT, Integrated Base Defense
- ❖ **Certification Agent for Surface Warfare Systems**
- ❖ **System Development Activity Lead for Tomahawk Weapon Control System**
- ❖ **Coordination Agent for Aegis Combat System IA Efforts**
- ❖ **Joint PM for Collective Protection**
- ❖ **JPO-CB Defense Host office**

How We Got Here

NSWC Dahlgren: A Legacy of Evolution & Revolution

1918

1940

1950

1960

1970

1980

1990

2000+

TODAY and the Future

Systems Engineering

- Combat Systems
- New Warfare Concepts
- Ballistic Missile Defense
- Integrated Warfare Systems

- Electric Weapons
 - Multi-use (Sense, ID, Engage)
 - Scalable effects
 - Lower cost

Computational Sciences

- Targeting
- Strategic Fire Control Computation
- Digital Fire Control

- Advanced materials
 - Toppide Design
 - Control of RF environment

Research & Development

- Math, Physics, Chemistry, Engineering

- Distributed Networked Systems

Test & Evaluation

- Integration of Unmanned and Autonomous Systems
- Advanced Sensors

NSWCDD, Dahlgren, Virginia

Integrated Capabilities



E3 Testing



Chem-Bio Defense



Railgun



Naval Directed Energy Center



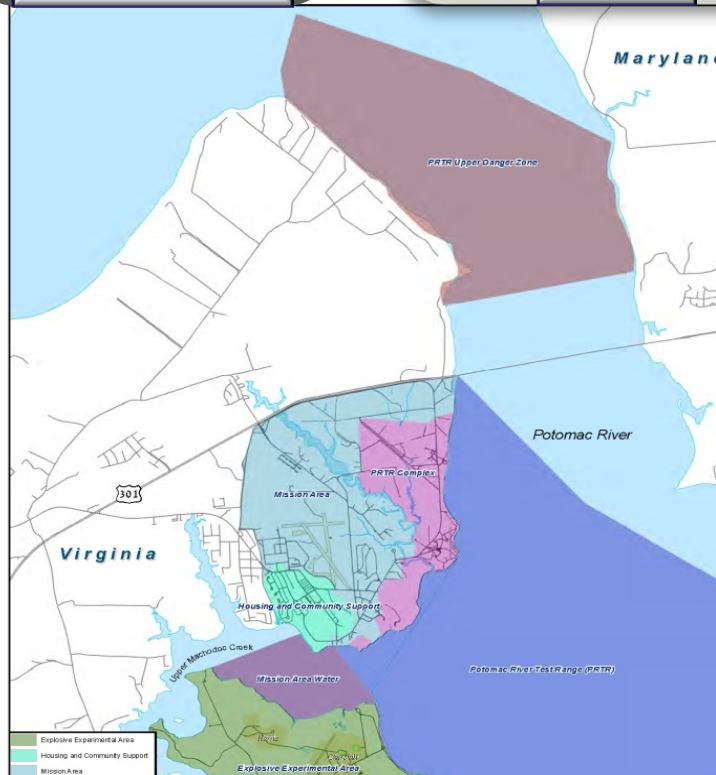
Sensors and Surface Combat Systems



SLBM Fire Control Systems



Tomahawk



Ordnance Testing



Integrated Warfare Systems Laboratory

Over 90 years of providing capabilities and innovative solutions in the areas of weapons and sensor systems, and combat systems.

NAVSEA's Hampton Roads Warfare Center

NSWC
Dahlgren Division

Direct Coordination with
Training Commands

"VACAPES OPERATING AREA"

The Only Test and Training space in
the world covered by land-based
SPS-48 SPS-49 and SPY 1 Radars.

Joint and Coalition
Warfighting

CDSA, Dam Neck
Command

Emergency Homeland
Defense Capability

***Celebrating our 50-year Heritage of Complex Mission Critical Systems,
Software and Hardware Engineering, Development & Life Cycle Services for Real-Time
Tactical Systems Co-Located with Hampton Roads Warfighter and Training Commands
and the US Atlantic Fleet***



NSWCDD FY12 Numbers



Business Baseline

\$1.5 BILLION

Total Contracting Effort

\$676.9M

Buildings Occupied

209

Total Square Feet

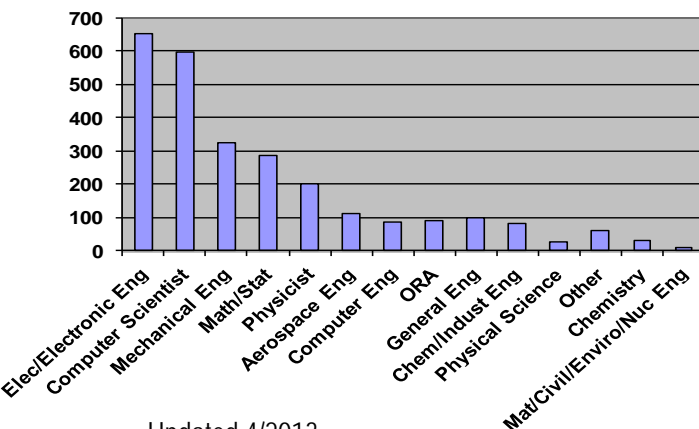
1,923,410

Civilian Staffing

Total # of Employees

3,760

S&E DISCIPLINES



SCIENTISTS & ENGINEERS

2,628

Workforce Education

BACHELORS	1978
MASTERS	941
DOCTORATE	140

Average Years of Service

14

Total Military

41

Average Age of Workforce

43

Updated 4/2013

Gross Pay Surrounding Counties Virginia:

Caroline	8.8 M
Fredericksburg	21.6 M
King George	118.9 M
Spotsylvania	69.0 M
Stafford	43.5 M
Westmoreland	16.9 M

Maryland:

Anne Arundel	.9 M
Calvert	.5 M
Charles	15.1M
Prince Georges	2.7 M
St. Mary's	3.9 M



Contracting Efforts

Total Contracting Effort (DL)
\$ 676.9M

Total Number of
Badged Contractors
Supporting NSWC DL:

1997

Employment Levels

Civilian Total
3415

Caroline	95
Fredericksburg	232
*King George	1165
Spotsylvania	672
Stafford	408
Westmoreland	190
Anne Arundel	10
Calvert	5
Charles	146
Prince Georges	27
St. Mary's	39
Other Counties	326

* Third highest concentration of STEM jobs in US.
- 2011 U.S. Chambers of Commerce report.

CRADAS (41 Existing)

- Montana State University (2)
- George Mason University (2)
- Market Central, Inc.
- TORC Technologies
- Oilton Remote Detection Technologies, Inc.
- Absecon Mills, Incorporated
- Sky Research, Inc.
- Massachusetts Institute of Technology
- Christopher Newport University
- Pennsylvania State University, Applied Research Laboratory
- University of Vermont
- Loyola University Chicago, Stritch School of Medicine
- Johns Hopkins University
- Mustang Technology Group, LP
- Dover Networks/Keith E. Mellinger
- Solvay Chemicals, Inc.
- University of South Carolina
- Mountain State Information Systems
- University of Louisville Research Foundation
- University of Oklahoma Health Sciences Center
- Aeroprediction, Inc.
- Baker Engineering and Risk Consultants, Inc.
- Compsim LLC
- University of Missouri
- DRS, Sensors & Targeting Systems, Inc.
- ATK Advanced Weapons Division
- Insitu, Inc.
- Johns Hopkins University Applied Physics Laboratory
- Cardinal Scientific
- Boise Technology
- Lockheed Martin Information Systems and Global Solutions
- Navistar Defense
- Wildcat Metallurgy
- Burbank Water and Power
- VA Tech (2)
- Arizona State University
- SRC, Inc.
- Medtronic, Inc.
- 1 CRADA Being Prepared

Educational Partnerships (30 EPAs and 3 MOUs)

- Montana State University
- University of Mary Washington
- Virginia Tech (EPA, MOU)
- Fredericksburg City Schools
- King George County Schools
- Spotsylvania County Schools
- Stafford County Schools
- Liberty University
- New Mexico State University
- Caroline County Schools
- Virginia Commonwealth University
- Portsmouth City Schools
- Massachusetts Institute of Technology
- Christopher Newport University
- Rose-Hulman Institute of Technology
- Technical Directors – Naval Warfare Technical Teams (MOU)
- VA Beach City Public Schools
- Howard University
- Hampden-Sydney College
- Orange County Public Schools
- Norfolk Public Schools
- Westmoreland County Public Schools
- Richmond County Public Schools
- Longwood University
- Colonial Beach Public Schools
- Somerset County Public Schools
- Polytechnic University of Puerto Rico
- Space and Missile Defense Command
- Lancaster County Public Schools
- Worcester County Public Schools
- DoD Education Activity, Dahlgren NSF
- University of Puerto Rico

2012 Summer Faculty Research Program (3) and Sabbatical Leave Program (1)

- 3 Professors Selected for the 2012 SFRP
 - New Mexico State University
 - Texas Tech University
 - Virginia Tech
- Johns Hopkins University (SLP)

Grants, Cooperative Agreements, Contracts (9)

- Virginia Tech
- College of William and Mary
- University of Arkansas
- Clemson University
- Potomac Institute for Research Studies
- University of Washington
- University of Alabama
- University of North Carolina
- North Carolina State University

Industry Partners (FY12 Top 5)

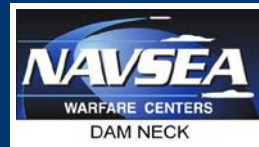
- Lockheed Martin
- URS
- Northrop Grumman
- BAE Systems
- SAIC

Work for Private Parties

- 18 Existing Agreements
- 12 Agreements Established in FY13
- 9 Amendments Established in FY13
- 7 Agreements Being Prepared
- 2 Amendments Being Prepared



Maintaining Mission Awareness among Community Interest Groups



- *Actively participate in local community group meetings and present at forums to share information regarding mission and economic impacts., such as:*
 - **Military Affairs Council** - a subcommittee of the Fredericksburg Regional Chamber of Commerce.
 - **Fredericksburg Chamber of Commerce and King George Chamber of Commerce** – voluntary, nonprofit organizations of businesses and professional individuals committed to advancing the economic prosperity and civic well-being of the community.
 - **Potomac Gateway Alliance** - a non-government/not for profit organization that provides a venue for the military commands at Dahlgren, contractors/industry, local officials and businesses to share information and topics that impact one another.
- *Execute our mission with acute awareness of the impacts we have on the community and the environment, such as:*
 - **South Potomac Community Relations Council** - representing both Maryland and Virginia local communities. NSWCCD responds to inquiries and attend informational meetings and special events.
 - **Colonial Beach, VA; Cobb Island, MD; and Swan Point, MD Citizens' Associations** - local homeowner associations representing communities adjacent to the Potomac River and other civic organizations, e.g., **Potomac Chapter Military Officers Association**. NSWCCD provides presentations at ad hoc meetings to address mission, economic impacts, etc., in particular information regarding Potomac River Test Range (PRTR).
- *Provide community awareness, scientists at public schools and community colleges. Strong working relations with University of Mary Washington Dahlgren Campus.*



Potomac Gateway Alliance, Inc.

**MILITARY AFFAIRS
COUNCIL**



**Potomac Chapter
Military Officers Association**

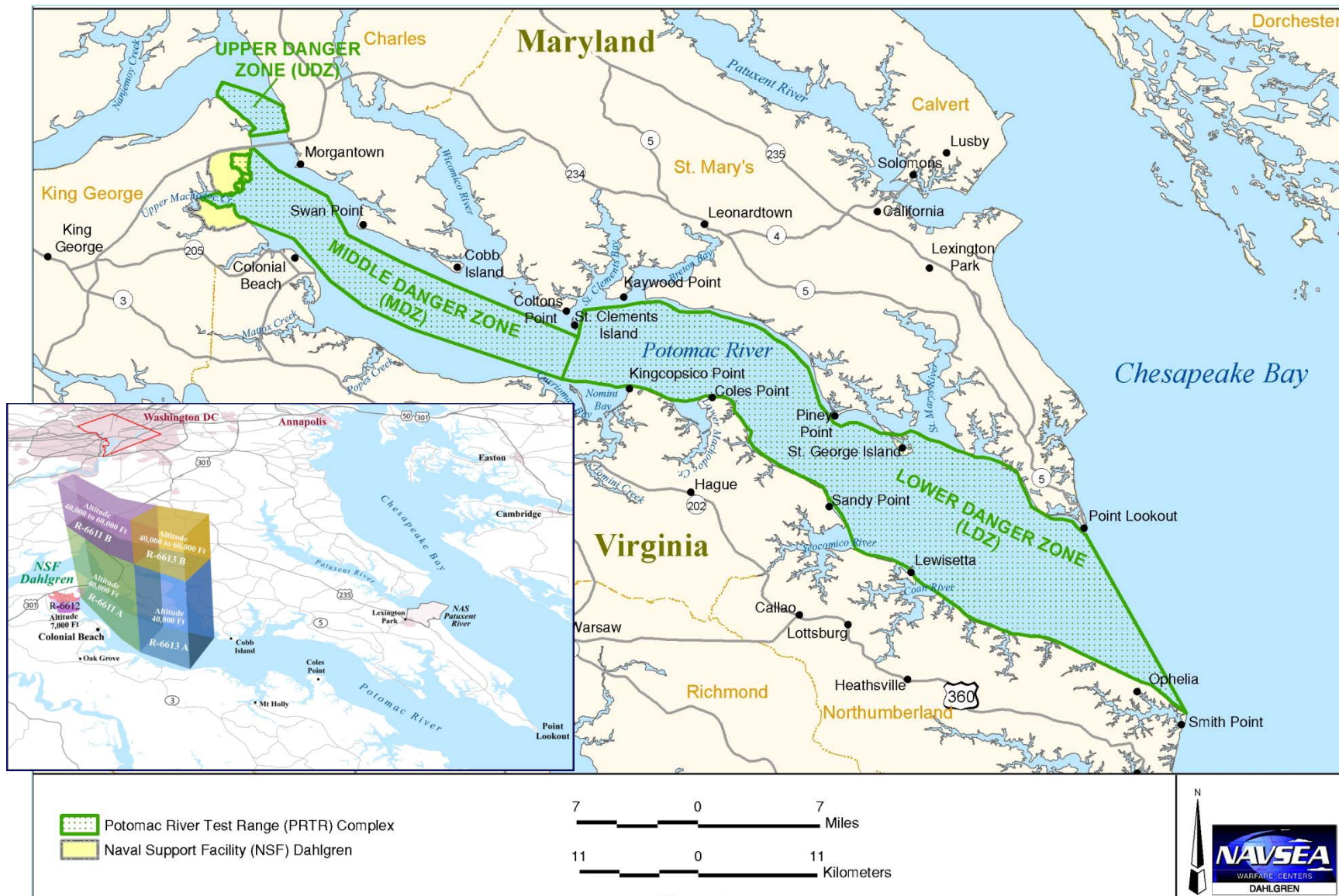
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- # Test Range Operations
- "In our continued effort to be a good neighbor, NSWCC Dahlgren's Public Affairs Office prepared this pamphlet by noise and boating."*
- Naval Surface Warfare Center Dahlgren Division**



Unique Facilities

Distribution Statement A: Approved for Public Release

Potomac River Test Range Complex



Potomac River Test Range

- RDT&E of major caliber gun systems & integrated weapon systems testing
- ~250 acres bordering Potomac River
 - Adjacent to over-water range and STSTS
 - Ballistic tests to 20 nmi
 - 1,200-ft buffer to shoreline
- 28 major caliber gun emplacements
- State-of-the-art instrumentation
- Connectivity to in-house system simulation labs
- Propelling charge assembly/storage facilities
- Test item temperature conditioning facilities
- Wired and wireless instrumentation network



8-inch Canisters



57-mm Mk 110
Gun Mount



76mm Super Rapid



8-inch Canister Firing

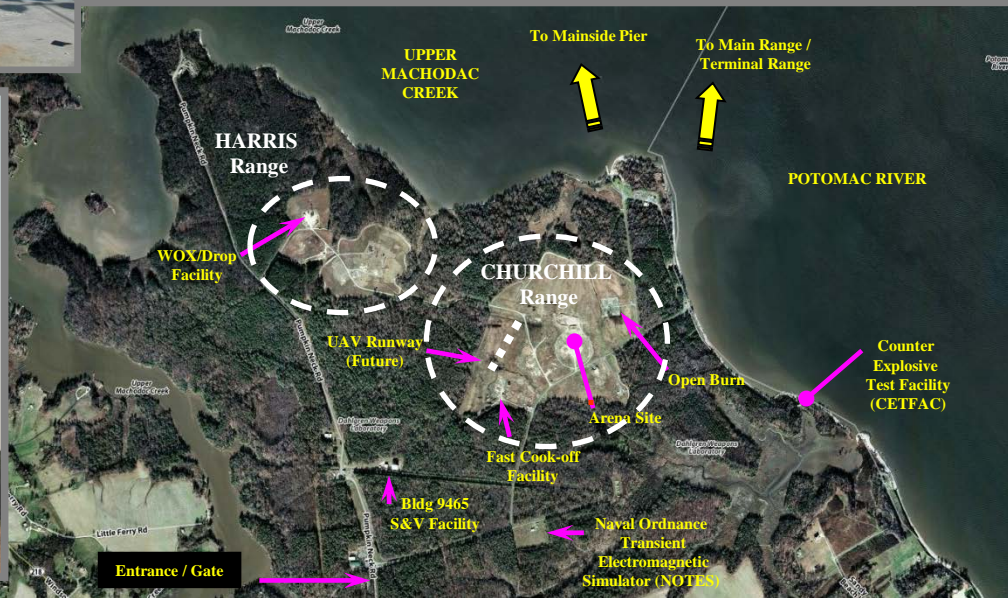


5-inch Gun



Oscillating
Assembly/Barrels

Explosive Experimental Area (EEA)

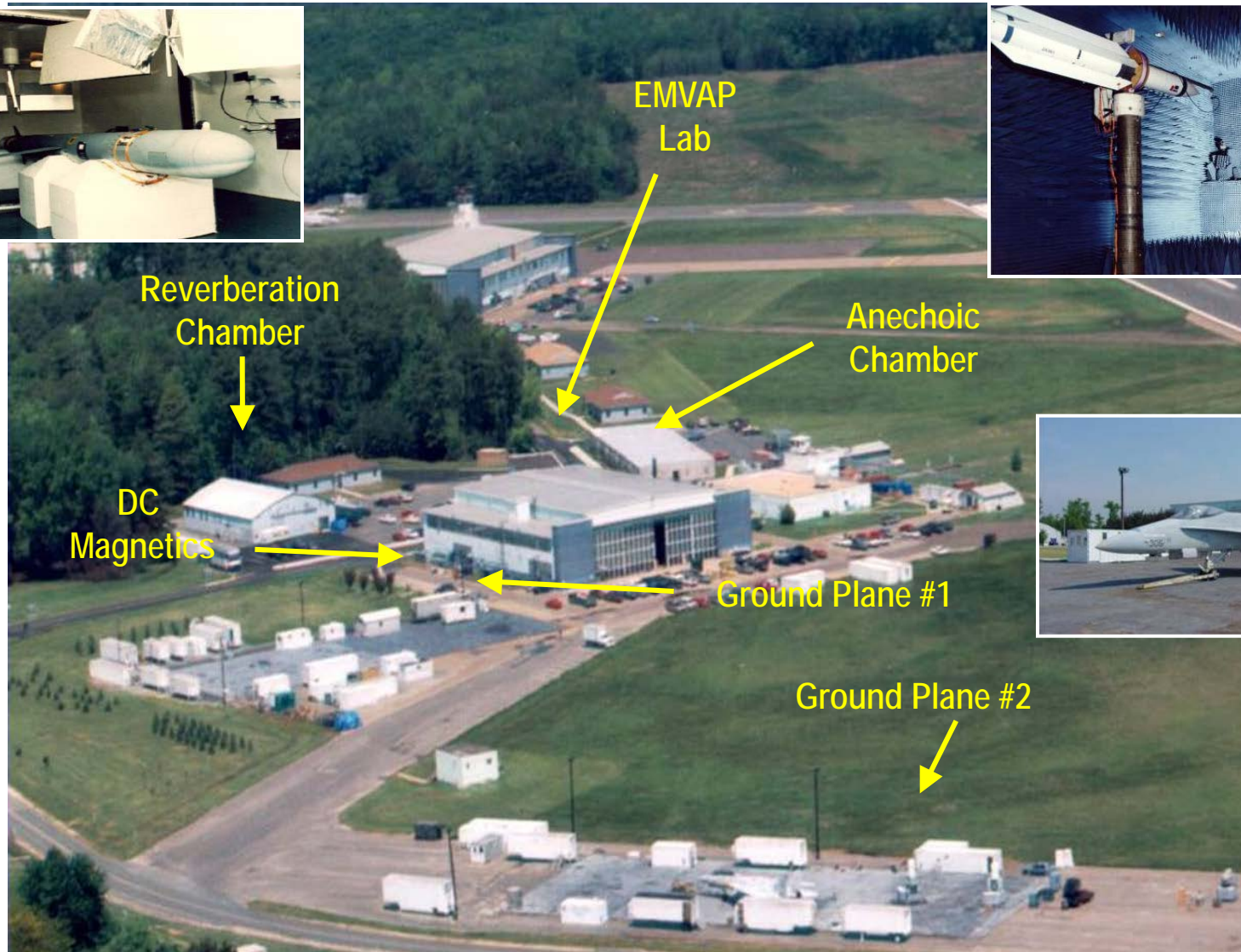


UAV Runway



- 1350 Ft long x 60 Ft wide
- Located in Restricted Airspace
- Geotextile Surface
- For UAVs up to 400lb
- Shadow, Tiger Shark, Viking etc.

E^3 Complex





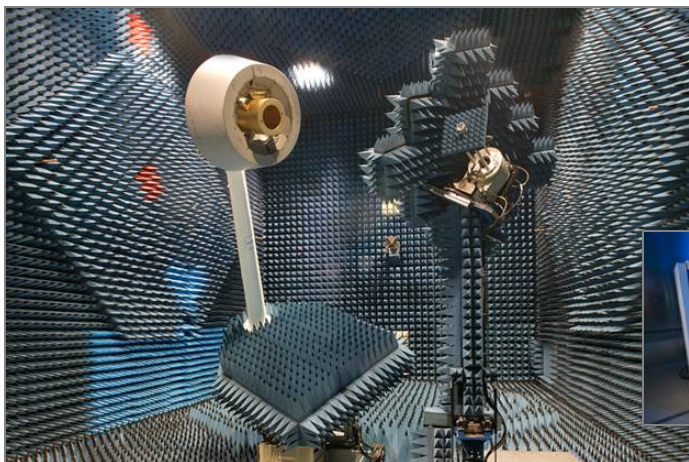
❖ Warfare System Integration and Interoperability Test Facility

- Land-based test facility relocated from San Diego to Dahlgren in FY 11
- 17,000 sq. ft. of laboratory space with digital switching for legacy and emergent combat system integration
- Tactical host hardware, software, and simulations supporting high fidelity testing for large deck surface combatants



❖ Link 16 Maritime Antennas AS-4127A and AS-4400

- Installed on U.S. Navy ships and shore sites as well as allied nation assets (via FMS)
- Omni directional (azimuth pattern)



❖ Compact Range System Implementation:

❖ Facility

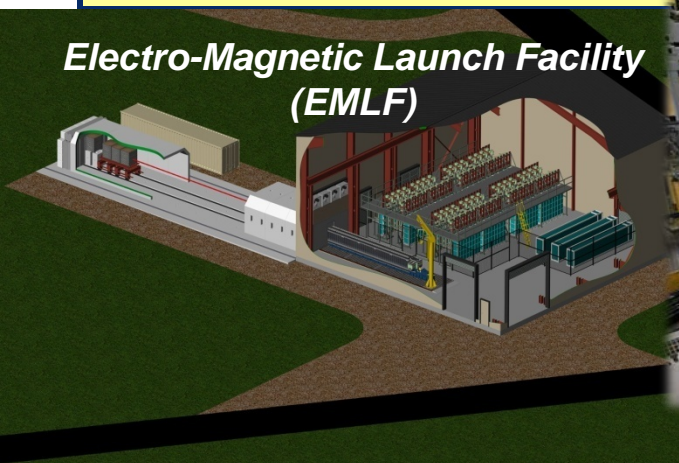
- Integrated shielded anechoic chamber
- Two stacked, independently-shielded control rooms
- Compact Range or Direct Illumination (500 MHz to 26.5 GHz)
- Near-Field Planar Scanner (15 X 15' scan zone; 2-18 GHz)
- 20 ft Diameter Turntable with 40,000 lb capability
- Machine Shop
- Assembly Area

Electromagnetic Launch Facility

- Supports T&E of experimental guns and ammunition components in a remote, isolated environment
- Electromagnetic Launch Facility
- ~6,500-ft overland range
 - Adjacent to over-water range for extended firing ranges
 - ~280 acres
- Road obstacles for IED simulation and experimentation.
- Wireless Instrumentation Network available



Electro-Magnetic Launch Facility (EMLF)



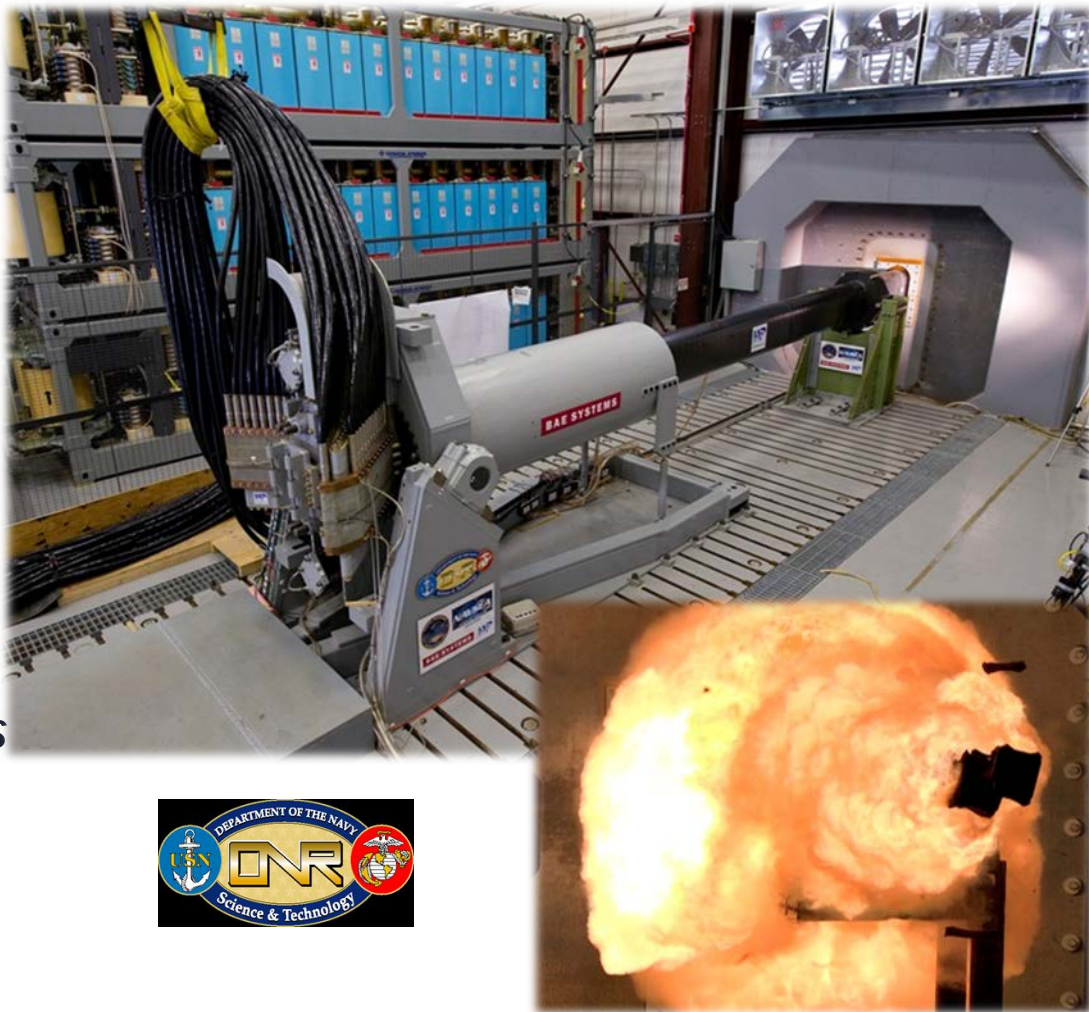
32 MJ Launcher

Rail Gun Firing



EM Railgun Prototype Launcher

- ❖ *First industry-built electromagnetic railgun prototype launcher fired at NSWC Dahlgren*
- ❖ *Built by BAE Systems*
- ❖ *Testing at 20 and 32 megajoules*
- ❖ *Next phase: Develop thermal management systems facilitate increased firing rates of up to 10 rounds per minute.*



"Next Step Forward Toward a Future Tactical System"

DE Facilities at NSWCDD

❖ Naval Directed Energy Center

- Multi-phase MILCON/MINCON: 26,000 sq ft of offices and secure HPM/HEL laboratories with high bay integration facility and direct access to PRTR
- New construction 2011-2013 will add 5,000 sq ft and indoor Higher Energy Laser 100 meter long test facility

❖ High Power Microwave

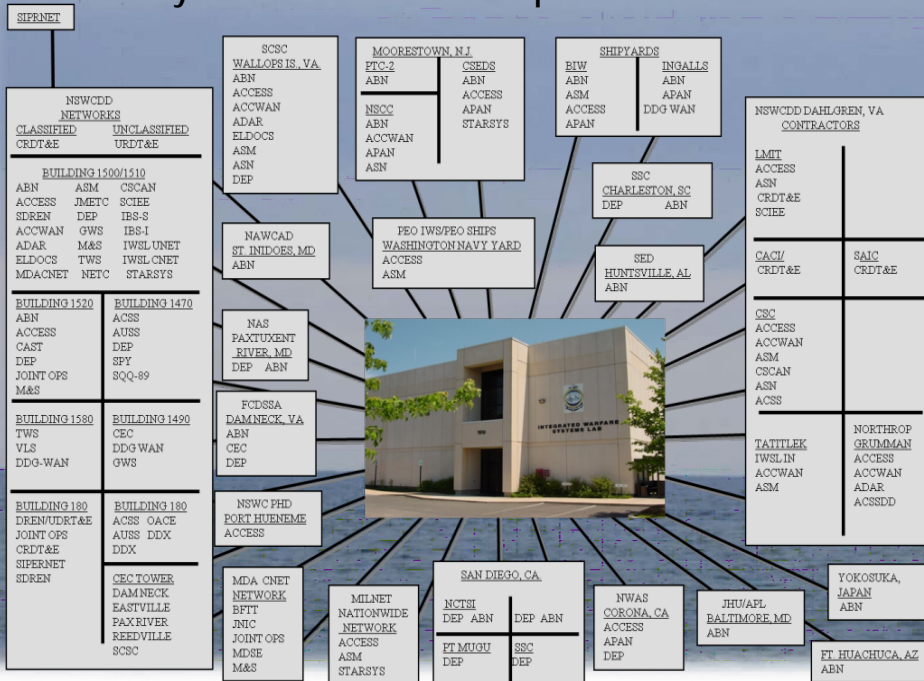
- Open air test range (MOATS) with multiple target buildings and various electronic targets (networks, industrial, C2, etc.)
- Reverb/anechoic chambers and outdoor ground plane

❖ High Energy Laser

- Land and water ranges up to 4 km
- Environmental approvals to operate outdoors up to 100 kW



- 7 AEGIS and ABMD Tactical Labs that can replicate 84 Hulls
 - Can Reconfigure to Replicate any Ship within 20 Minutes
- Expanded ACS Test & Integration Support (CEC, GWS, EWS, ASW, TWS, CDLMS, GCCS-M, SGS, VLS)
- Supports AEGIS and ABMD Lifetime Support Engineering Agent (LSEA) Efforts and Baseline production
- Navy and Joint Interoperability Test & Certification Support
 - Multiple External Connections
- Broad System Administration Capabilities



Sustaining Today's Fleet and Building an Affordable and War Ready Future Fleet Through Innovative Engineering and Cost Savings Initiatives.

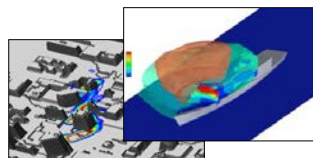
Chemical, Biological and Radiological (CBR) Defense

Mission

Serve DoD and the Nation as the Navy Organization providing innovative, timely, and effective products, technical solutions and expertise in Chemical, Biological and Radiological Defense.

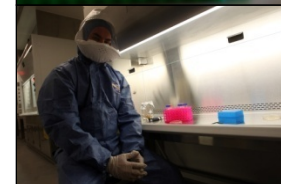
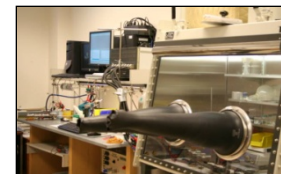
Focus Areas

- ❖ *Applied Chemistry and Biotechnology*
- ❖ *Micro and Molecular Biology*
- ❖ *Nano and Materials Science*
- ❖ *Toxicology and Immunology*
- ❖ *Point and Stand-off Detection Systems*
- ❖ *CBRN ATP and EM*
- ❖ *Collective Protection*
- ❖ *Waterfront Fleet Support*
- ❖ *CBR Defense Integration Activities*
- ❖ *Systems Engineering*
- ❖ *Modeling and Simulation*
- ❖ *Test and Evaluation*



Facilities

Material RDT&E Lab
Instrumental Lab
Synthetic Chemistry Lab
BSL-1, 2, and 3 Labs
Toxic Chemical Lab
Systems Engineering Lab
Standoff Detection Lab
Computer Labs
Imaging Lab
SCIF



Over-the-Water Test Range
Modeling and Simulation Lab
CPS Long Term Test Lab
Filtration Test Lab
Radiological Lab
Detector Lab
CPS Lab

Providing a Balance of Science, Engineering, and Real Time Support to the Warfighter

Our unique capability to rapidly introduce leading edge technologies and respond to warfighter needs is featured in online articles, fact sheets and technical magazines that illuminate the breadth of our research, development, testing and engineering support for our warfighters, the Navy and the nation.

A comprehensive collection is available at

<http://www.navsea.navy.mil/nswc/dahlgren/default.aspx>



Questions

